**Summary Minutes of the Science Advisory Board Meeting**
**June 3-4, 2004, SAB Conference Center, Washington, DC**

**Board Members:** See Roster – Attachment A.
**Date and Time:** Thursday, June 3, 2004, 8:30 A.M. – 5:30 P.M., and Friday, June 4, 2004, 8:30 A.M. – 12:00 P.M.
**Location:** EPA SAB Conference Center; 1025 F Street, NW, Washington, DC

**Purpose:** The purpose of this meeting was for the Board to consider a number of issues, including: a) the advisory process for the EPA science and research budgets; b) the content of the new Office of Management and Budget Peer Review Bulletin; c) the SAB and Agency nominated projects for SAB conduct during FY 2005, approval of two draft SAB panel reports, and to plan for future Board meetings. (See Attachment B for the meeting agenda). Attachment C contains the Federal Register notice for the meeting and the sign-in sheets for those attending.

**Attendees:** Chair: Dr. William Glaze

Board Members:
Dr. Domenico Grasso, Vice Chair

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| Dr. James Bus | Dr. Maureen Cropper |
| Dr. Ken Cummins | (telephone June 4 – partial) |
| Dr. Myrick Freeman | Dr. James Galloway |
| Dr. Steve Heeringa | Dr. Philip Hopke |
| (FIFRA SAP) | Dr. James Johnson |
| Dr. Catherine Kling | Dr. George Lambert |
| Dr. Jill Lipoti | Dr. Melanie Marty (CHPAC) |
| Dr. Gene Matanoski | Dr. Michael McFarland |
| Dr. Fred Miller | Dr. Granger Morgan |
| Dr. Rebecca Parkin | Dr. David Rejeski |
| Dr. Kristin Shrader- | Dr. William Smith |
| Frechette | Dr. Deborah Swackhamer |
| Dr. Thomas Theis | Dr. Valerie Thomas |
| Dr. Robert Twiss | Dr. Lauren Zeise |

**Others attending:**

See Sign in Sheets (Attachment C)

## Meeting Summary

The discussion generally followed the issues and general timing as presented in the meeting Agenda (Attachment B). Attachment C contains the *Federal Register* notice for the meeting and the sign-in sheets for meeting attendees.

## 1. Introductory Remarks and Welcome

Mr. Thomas Miller, Designated Federal Officer (DFO) for the Board opened the meeting and noted that this SAB meeting complied with the Federal Advisory Committee Act, and other relevant statutory requirements. Mr. Miller thanked the Board and Agency participants for their attendance. Dr. Vanessa Vu also welcomed the members and noted the importance of the topics to be discussed. Dr. Glaze also welcomed and thanked the members for coming. He briefly reviewed the agenda. Dr. Glaze mentioned the Agency Science Forum that overlapped with this meeting and the Board's opportunity to participate in the Forum and the Scientific and Technological Achievement Awards ceremony on the Hill as positive activities. The agenda was then implemented.

## 2. Updates from Other Agency Advisory Committees

**a) Board of Scientific Counselors (BOSC):** *Dr. James Johnson, ORD Board of Scientific Counselors and SAB Board Member:* Dr. Johnson updated Board members on the activities of, and upcoming member changes, for the BOSC. The BOSC charge is to provide advice to ORD on issues of management processes and practices. Six reviews are being planned for FY 2005 (e.g., multi-year research plans for mercury, biotechnology, coastal health; and a workshop on risk assessment). He noted the importance of BOSC – SAB cooperation on reviewing the agency's multi-year plans.

**b) Children's Health Protection Advisory Committee (CHPAC):** *Dr. Melanie Marty, Chair, Children's Health Advisory Committee.* Dr. Marty noted that CHPAC is a multi-disciplinary group of health, social scientists, etc. CHPAC advises the agency on children's health issues that are a part of EPA's policy development.

**c) FIFRA Scientific Advisory Panel (FIFRA SAP):** *Dr. Stephen Heeringa, Alternate Liaison to the SAB.* Dr. Heeringa noted that the SAP will have 3 new members as of June 2004 and that the SAP is loosing as members Drs. Fumio Matsumura, Christopher Portier, Mary Anna Thrall. Dr. Heeringa discussed a number of pending reports of the SAP (terrestrial probabilistic ecological assessments for pesticides, refined aquatic probabilistic ecological assessments for pesticides, and a model comparison of dietary and aggregate exposure using alternative models. Dr. Heeringa also noted the upcoming meetings of the SAB (see Attachment D).

**d) Clean Air Scientific Advisory Council (CASAC):** *Dr. Phil Hopke, Chair.* CASAC is now working on the particulate matter air quality criteria document and standard. The Agency is under consent degrees to complete particulate matter by the end of 2005 and the ozone standard by the end of 2006. Dr. Hopke noted that the

ozone criteria document was due to the CASAC this summer. He noted that the difficulty for the Agency to work on three separate criteria documents within the constraints of the available resources. He also noted the need for criteria documents to be more state-of-the-science documents rather than compilations of available data. He also noted that transboundary pollutants will need to be more explicitly addressed by EPA as the Pacific Rim nations continue to develop and as U.S. particulate matter standards get more stringent. In this case, the ability of the U.S. Standards to influence actual PM content diminishes because much of the remaining load may come from outside the U.S.

**e) Advisory Council on Clean Air Act Compliance and Analysis (Council):** *Dr. Angela Nugent, for Dr. Trudy Cameron, Council Chair.* Dr. Nugent noted the reviews conducted on the Clean Air Act by EPA including the retrospective study, the first prospective study, and now the beginning of the second prospective study (1990-2020). The Council recently reviewed the Analytic Plan for the "third" study. Members were interested in how climate change was being integrated to the study, the time periods focused on for the past studies, the need for CASAC and EPEC interaction on ecological issues – particularly where ozone is concerned, the "learning laboratory." The Board believes that cross-fertilization between the Council, CASAC and the Board is important for these analyses.

**3. <u>SAB-EPA Discussion of Lessons Learned from the FY 2005 Science and Research Budget Advisory Process</u>**

The purpose of the session was to allow Board Members and Agency representatives to engage in a dialogue on the FY 2005 advisory process and to identify process enhancements that can be implemented for the FY 2006 cycle. Observations were shared on what the participants believed worked well and what did not work so well during the FY 2005 cycle. The following list of background information was provided to members, the Agency and the public as background information for the session:

1) Background Information for the Lessons Learned from the Science Budgets Advisory (Attachment E to these minutes);
2) copies of the agendas for the December 2003 and February 2004 Board meetings on the 2005 budget (Attachment F);
3) the charge for the FY 2005 advisory (Attachment G);
4) the *2003-2008 EPA Strategic Plan-Direction for the Future* (Attachment H);
5) the final SAB report on the FY 2005 budget advisory (see Attachment I or URL http://www.epa.gov/sab/pdf/sab_adv_040303.pdf); and
6) Dr. Matanoski's statement for the Congressional Hearing on the FY 2005 EPA science budget (Attachment J).

**Dr. Genevieve Matanoski provided overarching comments from the Board's perspective** on the FY 2005 advisory process. She noted that the budget interaction has been difficult for both the SAB and EPA because it focused on a budget, and the documents supporting the budget; the time to prepare for a review and respond with a

report was quite short; and the materials available for review were very limited. Dr. Matanoski acknowledged important improvements in the FY 2005 budget advisory and a number of important issues yet to be accomplished. Improvements noted included use of the framework from the 2003 EPA Strategic Plan to structure the information provided to the Board and the investment of additional Board resources and time in the advisory activity. Enhancements yet needed include greater consistency in how each Goal-Specific Team works on the issue, earlier interaction with the agency, and the need for additional information on the content of science programs in ORD, program offices and regional offices.

Dr. Matanoski also noted that specific EPA science budgets are reviewed by EPA and non-EPA groups during the budget formulation process. It is the case that other organizations have an important influence on content and funding levels that are ultimately carried in EPA's final science budget.

Dr. Matanoski stated that the SAB advisory on the EPA science budget is a unique situation where Congress directly asks the SAB to provide it with advice and information. This normally occurs in the form of testimony at a Congressional Committee hearing each year. In this case, the SAB voice can be heard if it conveys an effective message.

**Dr. Paul Gilman, Assistant Administrator for the Office of Research and Development (ORD) and EPA's Science Advisor, provided overarching comments from the Agency's perspective** on the FY 2005 advisory process. He underscored the importance of the SAB's independent and educated voice in the budget process and that he often quotes from the Board's advice. He noted the importance of the Board insights that reflect years of looking at EPA's science budgets. The Board has recognized and advanced the understanding that science at EPA involves more than the research that is conducted by the Office of Research and Development. The Board makes it clear that in addition, EPA Program and Regional Offices do much science.

Dr. Gilman stated that additional Board activity, focused on learning more of the interplay among ORD science, program office science and regional office science in meeting EPA's overall science needs, is one key activity that should continue. Though specific investment levels will remain difficult to obtain for individual program components, learning the pieces of the science program will ultimately lead to an integrated understanding of EPA's science by the Board.

Dr. Gilman suggested that the EPA Science Inventory will grow in importance as a tool to learning about ongoing components of the EPA science program. The Inventory is already used by EPA to identify peer review activities and it is instrumental in responding to OMB's oversight responsibilities under their new peer review guidelines (see additional information in these minutes in item 4). It can also be used as a tool to help EPA consider what it gets from its science investments.

Dr. Gilman suggested that next year's budget process might be even more complex than this years' process and that Congressional activity on the FY 2005 budget may not move forward until after the National elections in November. Normal agency behavior in response to such a situation is to conserve resources and curtail program initiation. The Board's activity on the next science budget should recognize this and the Board may want to begin to focus on the out-years (FY 2006 and beyond) where its advice might be able to inform the Agency of priorities in a proactive fashion as contrasted to what is now effectively a retrospective look.

Dr. Gilman acknowledged the usefulness of the December SAB workshop, especially the sections on biotech and nanotech. These kinds of emerging issues, also highlighted in the budget advisory, present a practical problem to him as a research manager. The issue is how one can prepare and implement a budget and run it in a way that permits sufficient flexibility to make moves that deal with emerging science needs. Such issues come up more frequently than most imagine.

A number of **process issues were identified during the general and Goal-specific discussions** about the Advisory Process for science budgeting. These are briefly discussed below.

**a) Earlier Involvement in the "Budget Process"** – Is the Board precluded from becoming involved in the process prior to the President's release of the Federal budget in early February? There are, in general, two major phases to the budget process; one that is a more inclusive, more open, **planning process** that can be helped by advice from groups like the Board. The other is a deliberative, less open, **budget preparation** process that involves sequentially proposing and modifying budget proposals through the management chain. This second process culminates in decisions and revisions to conform to the overall Administration budget and program goals for a specific budget year. Openness is related to the part of the process that the Agency is in when information sharing is desired. It is more likely that access can be given in the planning process. Access in the budget preparation process is not an option.

In addition, the Board must be careful about how it participates in these activities. The Board must maintain its independence so that it can still advise on the issue.

The Office of Management and Budget (OMB) and EPA itself are major players in what eventually gets into the budget. The Board should at least request that OMB and EPA principals provide information on the overall budget process, as well as how they make decisions that influence budget levels and ultimately programs that can be conducted within these budgets levels.

It is possible to provide additional detail on specific science programs and investment levels within the framework of the new EPA Strategic Plan.

For the next cycle (FY 06) the planning process is largely complete and the budget process is underway – making the suggestion of an out-year-focus for the Board (made

earlier by Dr. Gilman) all the more appropriate. ORD representatives noted that the FY 2005 SAB advisory was used by the Agency in a proactive manner during the Agency planning phase for FY 2006.

**b) Agency Use of the Science Inventory –** Are there internal barriers to use of the Science Inventory that cause some EPA offices to use it less than others? It is not likely that significant barriers exist to use of the Science Inventory by Agency offices. With the new OMB Peer Review guidelines, that require among other things that the Agency report on major work products, the utility and need to use the Inventory will increase.

**c) Broad Knowledge versus In-depth Knowledge of EPA's Science Programs –** The appropriate level for the SAB's focus during the science budget advisory is still not clearly defined. The broad (horizontal) knowledge of EPA's operating and science programs, within the framework of the Board's Strategic Plan, provides good context on science's general use in policy development; however, it does not provide that deep, downward slice of information that shows how specific programs actually address the component parts of EPA's operating programs. Both perspectives are needed by the Board. The important question is how narrow and deep a slice into component programs is required so that the Board can develop an effective message on EPA's science budgets? Defining the appropriate focus, and obtaining data to support consideration at that level, is very important to the Board as it develops advice that will make a positive difference in EPA's science.

A possible approach for the Board would be to focus throughout the year on understanding the science activities that are performed by each EPA component office. This is in contrast to what is now the predominant approach that periodically evaluates limited documentation on EPA's science budget and provides advice on a completed product that has already been submitted to Congress. Having a more encompassing and deeper understanding of the science that EPA conducts would provide a better basis for the short-term requirement to consider and advise on a single budget once each year. This understanding could be developed during specific Board – Agency informational interactions throughout the year. Specific SAB Committee reviews of narrower science products which occur throughout the year should be considered as a part of the continuous learning experience of the Board. In such cases, SAB Committees conducting specific reviews should periodically share information on these programs with the Board so that it becomes a part of the Board's corporate knowledge.

Though the Strategic Plan provides a useful framework for understanding EPA's programs in an aggregated picture, it is important to recognize that the structure is one that has been constructed to convey that information in an understandable manner and that such an understanding can be conveyed using a different structure (e.g., a ten-goal structure from the previous strategic plan). As the Board develops its deeper knowledge of Agency science components it needs to recognize that science associated with one Goal area can support goals beyond the one with which it is

nominally associated. Input on Agency science program content may also be gained from Board interactions with groups from outside EPA.

Dr. Gilman suggested that the Science Inventory would be a good tool to help with the task of understanding what science is conducted in specific agency program offices, and he offered the services of ORD's Office of Science Policy to help the Board with using the Inventory for that purpose.

**d) Goal 1 Comments –** Board members felt that for Goal 1:

i) Members had insufficient information on priority, adequacy of funding, the identity of who does specific research (intramural vs. extramural), and whether specific research would be expected to provide long-term results.

ii) It appeared that research that could demonstrate results in the short-term was preferentially chosen for funding over research that had longer-term implications. However, because the Board was only given information on research that was funded, there was no opportunity to compare it to activities which did not get funded.

iii) There was too little information on how trade offs were made across research needs (decision making at the margin);

iv) Mismatch of Goal Team expertise – The Goal 1 Team had a member who was principally interested in global climate change, which is in the title of Strategic Goal 1 but was addressed in ORD's Goal 4 research; and

v) Lack of information showing why there was a significant shift of resources out of research and into a large program office-focused project.

Agency representatives indicated that problems with too little information were due to the lack of time to lay out specific information for the Board. Also, they noted that two key Board members were not available to work on the advisory. In addition, for the PM science program decisions, the Agency has been following NAS guidance. The Board needs to have knowledge of the NAS advice so that it can be considered as it develops its own advice. The importance of multi-year plans as sources of information on Agency science programs within a Goal was noted and that the needs conveyed in such plans do not change as budgets change. Thus they remain good sources of information.

In terms of mismatch of Board assignments and depth of coverage in each Goal area, the Board should consider bringing members of SAB standing committees, CASAC, and the Council into the budget advisory process as expertise and knowledge-sharing needs deem to be appropriate.

**e) Goal 2 Comments –** Board members noted that most of the significant information sharing between EPA and the Board occurred during the break out sessions. Problems identified by the Goal 2 team were that: 1) there was little link between the presentations and the actual charge questions to the Board; 2) no information was provided on decision making at the margin; 3) there was too little time invested in the Board reflecting on each of the Goals after the report out from the break out sessions;

4) there was no Office of Water representative present at the break out session; 5) the percent change in program investments was hidden by the information available that compared one budget to another budget and not actual funding levels to a budget level; and 6) there is a need for information showing the interactions between EPA's Clean Water Act (CWA) programs and its Safe Drinking Water Act (SDWA) programs.

Dr. Schoeny, Office of Water stated that there is a need for the Agency to tell the Board more. She is especially interested in the potential of the multi-year plans to help with providing information on the science in specific areas. She is interested in Board advice on those plans and noted the need for better synergism between science supporting the CWA and SDWA.

**f) Goal 3 Comments –** Board members noted that there is a large contrast between science that is budgeted to support land protection programs in relation to that provided for land restoration – most of the Goal 3 research is in support of restoration. Members noted the need to do more in life cycle programs in response to the call in the EPA Strategic Plan to move the nation from a waste orientation to a life cycle orientation.

Dr. Hoffman, Office of Solid Waste and Emergency Response, noted the value of the break out groups in achieving a good discussion of science in Goal 3. She noted the need for additional information on this Goal as well as how it links to science efforts in Goal 4 and Goal 5. Dr. Hoffman wondered if the Agency's attempt to link the specific science activities with program and regional activities came across to Board members as such. Dr. Wentsel, ORD, agreed with the effectiveness of the break out sessions and noted that Board comments are being considered in relevant multi-year plans in the Goal 3 area. He also agreed that there needs to be more cross-goal information provided.

**g) Goal 4 Comments –** Board members noted the need for better and earlier interactions between the Board and EPA representatives in order to obtain additional information on Agency science activities. To help in this activity, the Board will need to do more to identify the information it needs for the task. Past SAB reports were identified as important sources of information on both agency science programs and the SAB's advice on those science programs (multi-year plan reviews would be of particular value). Members also noted the importance of pointing out missing science in EPA's program budgets. Of interest to the Board is whether the right science is being done to support specific mission components.

Dr. Merenda stated that the approach EPA took to providing information in Goal 4 was to note the Agency's mission specific programs and then to present information on categories of science activity by using a representative example of those science activities within specific programs. He wondered if better information was provided in the break out sessions as compared to the formal presentations to the plenary. He noted that a set of focused questions defining the types of information the

Board would like to have on specific programs would help EPA to better prepare for providing information to the SAB. He noted the difficulty, even within a program office, of getting specific information on actual amounts of resources being invested on specific science activities (registration vs. re-registration, for example). He stated that for the FY 2006 cycle, the Program Assessment Rating Tool (PART) will be used to evaluate the integrated ORD – OPPTS program on endocrine disrupters.

**h) Goal 5 Comments –** Members noted the relationship of Goal 5 efforts to other Goals and the difficulty they had in understanding all the program pieces and how they link to Goal 5. Members also noted that Agency representatives seemed to be able to provide better information on trade offs during the break out sessions than during the plenary presentations.

Dr. Diana Love noted that this was National Enforcement Investigative Center's (NEIC) first opportunity to present information to the Board. She believed the break out groups worked well and hoped members understand how NEIC is involved in the Agency programs. She believes there is a need for the Board to be given better information on how science, enforcement, and compliance interrelate and the need for applied research and capacity building for science.

Dr. Al McGartland underscored the cross-cutting applicability of economics to all EPA programs. He appreciates the Board's continued support of the need for the PACE survey which is now recognized by having a home in his office's budget.

**i) Cross-Goal Perspective –** Board members stated that the Agency presentations were useful to the Cross-Goal Team. The difficulty in identifying cross-goal issues was evident. However, the Team identified a new direction and EPA program need that is totally missing. Members recognized that the quality of the information that EPA can provide to the Board is influenced by the kinds of questions that the Board asks of EPA. Attending to cross-goal issues, of the type identified by the Board in its advisory (emerging issues), is difficult given the flat to decreasing EPA science budgets. The EPA Strategic Plan is useful, but it is more tactical than strategic. Multi-year plans are also useful information sources. Improvement in our advisory process is needed.

**Members discussed the path forward so that the Board is prepared for and for developing advice on future science budgets.** A number of issues were identified as worthy of consideration as the Board plans for this future activity. These include the following:

a) The Board will focus on two distinct, though related, budget time frames: FY 2006 and FY 2007 and beyond (the out-years);

b) The Board and EPA will engage in a "continuous learning process" for EPA's science programs (throughout the year) to prepare itself for the once-annual focal

activity of advising the Agency and the Congress on the EPA science budget (February-March);

c) The continuous learning process will focus on Agency planning activities as contrasted to their actual budget formulation actions. Because EPA's science programs and personnel do not normally change radically from one year to the next, it is possible for the Board and EPA to engage in this continuous learning activity throughout the year;

d) Useful information for learning of EPA's science activities can be taken from at least Agency multi-year plans and the EPA Science Inventory (other information sources will be explored as well);

e) The Board will begin to obtain information on emerging issues from states, regions, and non-governmental organizations;

f) The Board will develop an inventory of its own past products. This can provide valuable insight into EPA's science programs and what the SAB has advised over the years – the Board may consider the effects that these reports have had on the agency's programs;

g) The Board is interested in how external groups influence EPA science investments;

h) The Board is interested in furthering the discussion on how outcomes from EPA's science programs are measured and factored into EPA Program and Regional Office activities and how that links to investing in science at EPA;

i) The Board is in a unique position to obtain an understanding of EPA's science programs that will allow it to be heard in the continuing debate over how best to build the nation's capacity for developing science programs that are needed for environmental policy making; and

j) Board Teams need to be refined to ensure that they will be around for the longer run so that they can be a consistent resource for advising on science budgets.

**ACTION: Staff will prepare a draft document that provides information on the EPA science planning and budgeting process and suggests a plan for the Board to pursue as it advises EPA on its science budgets and the programs that EPA pursues with those budgets. The draft document will be circulated to EPA offices and to Board members for comment and a telephone conference will be arranged to discuss modifications that might be needed to the document. Goal specific team makeup will be within the scope of the document as will how the Board will structure itself to conduct this function (e.g., Board-of-the –Whole vs. delegated to a specific group to be appointed for the function). It is important to remember that the intent of the process is to allow the Board to make specific, transformative recommendations to the Agency on its science programs.**

**4. <u>OMB Peer Review Bulletin – Information Session</u>**

The purpose of this session was to allow Board members to discuss the content of the OMB bulletin providing the requirements for peer review of "important scientific information." The discussion was also intended to help members evaluate how the Agency nominated SAB projects for FY 2005 fit within the OMB peer review framework. The SAB's peer review role falls within the range of appropriate peer review mechanisms for "influential scientific information" referred to in the OMB bulletin.

The OMB bulletin establishes the requirement for peer review of "influential scientific information" prior to government dissemination. Science information includes scientific assessments in support of the Agency's multiple missions and in fact, the bulletin recognizes a subcategory of information that it calls "highly influential scientific assessments." For this subcategory, more specific requirements are given for peer review. The guidelines intend that agencies ensure transparent processes for peer review, use persons with relevant expertise, and consider the reviewers' potential conflicts of interest and independence from the Agency and/or the regulated community involved with specific issues. The bulletin addresses the adequacy of peer reviews; the choice of peer review mechanisms; information used to support peer reviews; opportunities for pubic participation; requirements for peer review reports and Agency responses to those reports, and selection and management of review panels. The bulletin also establishes the requirements for preparing and posting peer review plans and agendas on websites, record keeping for peer reviews; safeguards for sensitive information and waivers from the review requirement, exemptions from the requirement, and oversight responsibilities. Attachments K and L provide background information used for this session.

Several members provided their reflections on the guidelines and others asked Dr. Margo Schwab, OMB, for clarifications of certain parts of the OMB bulletin. Drs. Glaze and Morgan noted the impressive improvements in the current version of the guidelines relative to the first version. Dr. Glaze stated that the scientific community has been impressed by the guidelines now under consideration and that they set a new standard for the nation and will make a big contribution to science in the future. The impacts to EPA should be modest because the Agency already has a well-designed peer review process. The SAB process complies with the guidelines.

Topics discussed, and/or questions asked, by Board members included:

a) clarification of who is the "Administrator" mentioned in the act (refers to OIRA Administrator);
b) what alternative procedures were envisioned (OMB provided this as an opportunity for alternative procedures that are equivalent to NAS peer review procedures;
c) the role of public comments, requirements for publishing comments on the web, and independence of reviewers from specific agencies;

d) the apparent broad scope of the definition of important scientific information (ISI) (the definition is actually linked to the way in which specific agencies define such information, it is not an OMB specification);
e) how SAB projects might be identified as focused on "highly influential scientific assessments and how that might affect SAB procedures," the fraction of SAB reviews involving influential science information, whether EPA is obtaining peer review of such information, whether a cut off date exists for determining the adequacy of past peer reviews, and what constitutes early review;
f) whether peer review requirements under certain statutes (e.g., CAA for CASAC) are changed by the guidelines (the bulletin does not change the existing law);
g) the possibility of *post hoc* peer review of things that might qualify for an exemption under emergency conditions as a means to look back at the action;
h) the difference from the peer review envisioned in the guidelines and that which is associated with journal publication and clinical trial protocols;
i) how the oversight process works (none yet in place since the guidelines are not yet final);
j) how cross-agency efforts are to be reviewed;
k) how significant the change from a $100 B to a $500 B threshold is for the number of issues that are subject to the rule;
l) how the issue of agencies having different metrics for the same thing are to be reconciled (e.g., value of statistical life);
m) whether standing committees, having a core of members that serve for a period of 3 to 6 years is viewed as inconsistent with the bulletin's requirement for reviewer independence and turnover; and
n) the importance of FACA and federal ethics and conflict of interest requirements in resolving issues that are highlighted by comments such as "c" above.

**5. <u>Project Nominations for FY 2005</u>**

The purpose of the session was to identify and briefly discuss projects nominated by the Agency, and by members of the Board, SAB committees, CASAC, and the Council for conduct during FY 2005. Projects nominated have been submitted by the Agency and the SAB and they are distributed within both the Advisory and the Peer Review categories of SAB responsibility. The Board's established practices for project nomination and acceptance are discussed on pages 9 to 11 of the *Implementation Plan for the New Structural Organization of the EPA Science Advisory Board* (EPA-SAB-04-002). Attachments M, N, O, and P provide background information used for this session.

Dr. Vu covered the process used by the Staff Office to obtain these project nominations and reminded members of the definitions of the various categories of SAB activities that the projects fall within (consultation, advisory, peer review, etc.). She noted that the projects are for the Board's information now and any feedback they wished to offer in regards to their focus, appropriateness, and additional work needed to clarify their intent. SAB Staff Office personnel will obtain any desired additional information prior to the September meeting. The Board will be asked to provide its approval for specific projects during the September meeting of the Board.

**a. Agency Nominated Projects**

i) CASAC Projects: Six projects indicated for CASAC conduct are identified in Table 1 of Attachment N. All appear to be important and appropriate. Members agreed to the need for SAB committee cross-fertilization with CASAC on specific topics so that a broader perspective is brought to the table during their review.

ii) Council Projects: One Council project is identified on Table 2 of Attachment N.

iii) SAB Projects: Table 3 of Attachment N contains 30 projects that are proposed for the SAB in FY 2005. Each of the projects needs to be considered in light of whether it rises to the level of an acceptable focus for the SAB. Project Sheets explaining most of the projects are contained in Attachment O. Members offered comments on several of the projects during the meeting. Those with explicit statements in support of their being a high priority for the SAB to conduct include projects 15, three unnumbered projects on Homeland Security, one unnumbered project on microbial risk assessment, 04-07, 19, 27, 30, 31, 32, 33, 34, 17, 20, 22, 18, 41, 04-31, 25, 43, 04-24, 04-26, 05-036, and 04-21. Staff needs to solicit and compile comments on all projects in preparation for the September 2004 Board meeting.

**ACTION: The Board DFO will send a request to SAB members asking for them to identify additional information they wish to see on the projects nominated for SAB action by the Agency. This information will be used to identify revisions to the nominations that are needed from EPA prior to the Board's discussion and approval of the projects at its September, 2004 meeting.**

**b. SAB Nominated Projects**

Table 4 of Attachment N identifies 8 projects that are proposed by SAB Board and Committee members for consideration as FY 2005 projects. Proposals explaining the intent of these projects are contained in Attachment P. Each project was discussed by the Board. The paragraphs below indicate the outcome of these discussions.

**i)** Project 48 – Evaluating the Agency's Ability to Anticipate Risk: Drs. Parkin and Morandi introduced the project. Members suggested that the project needed further development especially in the area of considering past activities and reports that are relevant to this issue (e.g., the SAB's Integrated Risk Project and Future Risk Project, PMN process, state and NGO work on the topic, ecological index of the IRP,

some work of the FIFRA SAP on probabilistic risk assessment and an NAS study). Some suggested a link between this project and projects 45 and 46. While some noted skepticism about being able to predict the future in a meaningful way, they recognized the value of looking to the future so prevention activities might be taken where reason demonstrates a need. Also there might well be a benefit to the nation's ability to handle existing known environmental issues on the basis of considering how one might handle risks anticipated for the future.

**ACTION: Return the project to the nominators for additional scoping that considers the points made by the Board and evaluates information that they noted as relevant. The project can be resubmitted for consideration at the September meeting.**

**ii)** Project 49 – Probabilistic Approaches for Cancer and Non-Cancer Effects: Drs. Parkin and Hattis introduced the project. The project focuses on efforts to replace the use of uncertainty factors in assessments with distributional data taken from empirical studies. Members spoke in support of the need for the project and the importance of the issue in many assessment areas (exposure, risk, cost-benefit). Broadening the project was also suggested because there are many specific narrow examples of assessments using distributions. Use of the term "distributional uncertainty" was discouraged in the title in favor of "probabilistic approaches." The project was approved for moving forward to consultations with the Agency on how it could be conducted to best assist the Agency in moving forward in this area.

**ACTION: Dr. Vu will take this project to the Science Policy Council for consultation on EPA's needs in this topic. Drs. Hattis and Parkin will work on refinements to the project proposal once the Agency and the Staff Office Director further identify Agency needs and how the SAB can best help EPA.**

**iii)** Project 47 – An Integrated Research Approach for Nitrogen: Dr. Galloway introduced the project and noted that it had been approved for scoping and Agency Consultation for FY 2004. Agency support has been attained for the project and additional scoping has been completed. The project focus is to study and identify key components of N-related research that are missing from EPA's research agenda. Members supported the project and the need to have some interaction of representatives form CASAC and the social sciences. Dr. Morgan suggested a speaker for the first workshop. The Board members approved the project for final conduct and the Staff Office will proceed to Panel Formation.

**ACTION: Staff will proceed with formation of a panel and planning the projects first events.**

**iv)** Project 45 – EPA Research in a New Industrial Age: Mr. Rejeski introduced the project. This project originated with the Cross-Goal Team of the Board during the FY 2005 Science and Research Budget advisory. The proposal addresses directly the point made by Dr. Gilman in his remarks during our lessons learned session (see item 3 of these minutes – page 5 – on the difficulty and the need to both manage existing programs which focus on specific issues and at the same time prepare and budget for human health and environmental risk concerns that frequently emerge as byproducts of major moves in the U.S. and world economy). The issues addressed by the project are more focused on program structure and flexibility than on technological risk itself.

The focus is to encourage proactive consideration of reasonably predictable future technology-related issues that are often identified as problems once they emerge into the public eye. The structural issue for the commercial sector and for citizens in general can be illustrated by recent developments with genetically modified organisms used as crop species. Major investments were made in the development of genetically modified crop species. Once these species were introduced into cultivation, human health and environmental issues were raised and their acceptance by the public became an issue and this concern was used by some nations to preclude their use within their markets. Proactive consideration of possible human health and environmental problems as these crop species were developed may have precluded the outcome that removed potentially valuable crops from the world market and limited the commercial and health benefits from the large developmental investments made by the private sector.

For EPA, one structural issues coming from large external investments in technologies for a new industrial age is the likely decrease in the availability of resources for conducting environmental research. In short, investment in the development of these technologies will be more attractive than investing in environmental research. Over time, the Agency could have less knowledge and less expertise available to support policy making than will be needed.

Members noted that there are substantial difficulties in predicting the future and this could limit the effectiveness of this project. Members pointed to the similarity in the issues considered broadly in Project 45 and those more narrowly discussed in Project 46 on nano-manufacturing. They also noted that the focus of Project 45 might be too broad as now described and suggested that an effective way to

revise the project would be to combine it with Project 46 and proceed with a focus on nano-manufacturing and then decide after that has been conducted if there are principles and lessons that can be generalized to the broader issue.

See action item after discussion of Project 46.

**v)** Project 46 – Environmental Implications of Nano-manufacturing Technologies: The focus of this project is on examining the environmental implications of the adoption of emergent nano-manufacturing technologies in the marketplace. Though cast as having a focus on the implications of this new manufacturing approach, it really is an example of a more focused consideration of the issues generally characterized in Project 45. This project and Project 45 actually combine consideration of many issues such as technological innovation, social sciences, and risk to name a few.

Members agreed that this was an important area to pursue. It presents the opportunity to broaden the way social, risk, and technological sciences can be brought together to solve a major problem that EPA faces as it attends to "legacy" and emerging issues simultaneously and deals with the resource limitations that it will face in the foreseeable future. The authors of projects 45 and 46 were instructed to find a way to merge the two projects with the near term focus on nano-manufacturing and a longer term focus of generalizing the outcomes of that initial focus to the broader issue. This project has the potential of changing the way EPA thinks about conducting and using science to achieve its mission of protecting human health and the environment.

**ACTION: Drs. Theis and Rejeski are to work to combine the two projects for resubmission and discussion during the September Board meeting. In addition, this merged project will be the theme for the workshop that will be conducted as part of the Board's Annual Meeting in December 2004 (see item 7.b in these minutes).**

**vi)** Project 38 – Scoping Exercise for Consideration of the EPA Ecological Risk Assessment Approach: Dr. Maciorowski introduced this project because Dr. Dale was not able to attend this meeting. The project focuses on how the existing ecological risk assessment approach is conducted for various scales of risk, how it is used in policy making and in what types of situations it is most effective. The project was accepted by the Board for further scoping and Agency consultation during FY 2003. That scoping and consultation has been accomplished and the EPA Risk Assessment Forum will work with the Board on implementation of the project. Members suggested liaison with the FIFRA SAP as well as relevant federal and state

environmental management agencies in this project. The Board voted to approve implementation of this project.

**ACTION: The project should move forward to the implementation stage.**

**vii)** Project 14 - Commentary on a Framework for Optimization of Radiological Emergency Cleanup Decisions (FORECD): Dr. Lipoti introduced the project. The Department of Homeland Security proposes to use "optimization" as the endpoint for final cleanup actions when recovering from a nuclear or radiological emergency. Optimization implies a mix of societal values and needs integrated with risks and benefits of options. Public acceptance is the desired outcome for such actions. The project proposes to develop a commentary to advise the EPA on the conceptual framework of a formal method of optimization as the endpoint for final cleanups. The SAB activity would be to advise on the science which would provide the foundation for the use of optimization.

Members noted that optimization implies some defined social function that can be optimized; however, no such function has been articulated. The concept might better be thought of as balancing conflicting social objectives. Optimization needs to also include consideration of dose limits which are balanced with other factors. Dose limits do not seem to be a part of the proposed DHS approach. Both indoor and outdoor cleanups should be included. Mixed radiological and chemical risk may be an issue in some clean up situations. This project has not yet been discussed with the Agency. The project needs to be proposed in a positive light and include good social science dimensions.

**ACTION: The project should be revised to clarify issues noted and to fold in social sciences. Once revised, the project should be discussed with EPA to determine their interest.**

**viii)** Project 35 – Industrial Ecology Framework for Resource Recovery: Dr. McFarland introduced the project. The project grew from EPA's white paper "Beyond RCRA" and in a sense from the 2002 SAB Commentary on industrial ecology. Revitalization of the industrial ecology framework is needed to maximize resource recovery from non-hazardous solid waste streams. Many lessons can be learned from non-U.S. work that can be used to update the framework. Members decided that the proposal should be refined and returned for consideration later.

**ACTION: Revise the project and resubmit prior to the September Board meeting.**

## 6. Review, Consideration and Approval of Draft SAB Reports

The purpose of the session was to consider for approval two draft SAB reports. The reports are on EPA's: a) *The Economics Research Strategy*, and b) *The Air Toxics Research Strategy and Multi-Year Plan*. These reports are the first to go through the Quality Review Committee (QRC) process that was established by the 2003 reorganization of the SAB (see *Reorganization of the EPA Science Advisory Board (SAB)]: A Report of the EPA Science Advisory Board Staff Office* -- U.S. EPA, 2003 – EPA-SAB-04-001 and *Implementation Plan for the New Structural Organization of the EPA Science Advisory Board* – EPA-SAB-04-002[1]). As noted in those reports, "A Quality Review Committee (QRC) will be created to conduct a quality review of each *De Novo* Review panel draft report before it is submitted to the full Board for final review and approval for submittal to the Administrator."

The SAB Staff Office is responsible for establishing specific QRCs and the Director of the Staff Office appoints members from the Board to serve on specific QRCs – all QRCs are chaired by the Vice Chair of the Board. Additional experts can be added to specific QRCs if there is a gap in the expertise needed to fully evaluate draft reports. No experts were added for the evaluation of the two reports reviewed at this meeting. The QRC does not repeat the work of the SAB Panel that conducted the review leading to the draft report being evaluated. Rather, the task of the QRC is to determine whether:

i) the original charge questions to the SAB have been adequately addressed by the draft report;
ii) there are any technical errors or omissions in the report or issues that are inadequately dealt with;
iii) the Panel's report is clear and logical; and
iv) any conclusions drawn or recommendations provided are supported by the body of the Panel's report.

Dr. Grasso also noted a number of routinely available options open to the Board for dealing with draft reports. It is the Board's responsibility to make the final decision on disposition of each report.

The QRC reviewed the two reports and held a public telephone conference meeting on May 18, 2004 to discuss their findings and come to agreement on recommendations for the Board. Attachments Q, R, S, T, and U to these minutes provide background information on these reviews.

### a. Review of the SAB Draft Report on EPA's *Environmental Economics Research Strategy*:

[1]Additional details are included in the two documents cited here. The Board is drafting a new procedure to guide the implementation of the Quality Review process.

Dr. Maureen Cropper introduced the report and the review Panel's approach to responding to the Agency's charge.

Dr. Myrick Freeman presented the QRC's conclusions and recommendations. The report was judged to be excellent. It answered the charge with one reservation. The QRC suggested the report include three additional topics and noted that the panel's suggestions for ways to communicate about its environmental research needs and results could be enhanced by using sessions at national professional meetings to convey the information. The Chair has incorporated all these changes. Dr. Freeman recommended the report be approved by the Board.

Board Members and Dr. Cropper discussed a number of issues, including: how income effects might affect the value of statistical life computations, and the status of efforts on distributional effects in benefits assessment. Dr. Cropper noted how income effects are being considered and the state of considering distributional effects with respect to benefits. For benefits, the question is more a policy issue. However, the issue of distributional effects with respect to cost is a researchable question.

The Board voted unanimously for approval of the report and sending it on to the EPA Administrator.

**ACTION: Staff will do the final formatting of the report and transmit it to the Administrator and the relevant EPA offices.**

**b. Review of the SAB Draft Report on EPA's *Air Toxics Research Strategy and Multi-Year Plan (MYP)***:

Dr. Hopke introduced the draft report. He noted that the QRC had asked for some changes. Dr. Fred Miller then joined the call to discuss the report from the review panel's perspective.

Dr. Lipoti reported on the QRC's conclusions and recommendations for this report. The QRC noted a tonal disconnect between the draft transmittal letter to the Administrator and the strength of the comments carried in the text of the report. The QRC asked for a redraft to ensure that the letter and the text were consistent in tone and content. The QRC also asked that major recommendations and conclusions in the text of the draft report be highlighted in some manner to increase the report's clarity. She noted that the letter had been revised and included as part of the draft report sent to the Board for its final review. Further, the Panel Chair committed to making the editorial changes that would highlight the Panel's major conclusions and recommendations in the text of the report after the full Board's review. The QRC permitted the report to come forward to the full Board for consideration as a way to shorten the time to final delivery of the report to EPA.

Members questioned the following issues:

i. Whether the bulleted items in the letter captured all the salient points. The Panel Chair noted that they were the major points and that there was not an intention to include all in the letter to the Administrator.

ii. Whether the way the points are made in the letter and the report was sufficiently clear so that the Agency would get the message. Dr. Chon Shoaf, EPA coordinator of the research strategy and multi-year plan, indicated that he had read the draft report carefully, that he had been involved at the review meeting of the SAB, and that he indeed did get it and that appropriate changes are being considered by EPA as it plans for the next revision of the MYP and strategy. Thus, the level of detail in the report is meaningful to him.

iii. Members questioned whether the discussions under charge questions 4 and 5 are sufficient. In essence the report notes that the Agency should develop criteria and relative weights for important factors that would allow EPA to implement a tiered scheme for prioritizing future air toxics research. The guidance seemed to imply to some members that weights would be used in a quantitative algorithm ("rule-based decisions") that led to a priority for specific research needs. The Panel Chair explained that the intent was not to provide a scheme for EPA rather it was to tell the Agency to develop a scheme and that a tiered approach seemed to make sense. Members noted the need to ensure that comments made on aspects of one Agency program, such as this air toxics strategy and plan, not be presented in a manner that automatically causes the Agency to apply them to other programs in ways that might not be appropriate (e.g., a prioritization scheme in the air toxics program might not be entirely appropriate for EPA to apply to another the contaminant candidate list –CCL-- research prioritization schemes under the Safe Drinking Water Act). Dr. Morgan proposed and obtained agreement on a clarifying edit to be placed in section 4 b, page 10, of the draft report.

Members voted to approve the substance of the report with the condition that edits noted in Action 1 below are carried out and that the report is returned to the full QRC for this report for their approval. Once the QRC members approve of the edits, the report can be sent to the Administrator without further action by the full Board.

**ACTION 1: Edits are to be made to the draft report to cover the issues noted in the following:**

**i. Ensure on page 3 of the letter to the Administrator that the suggestion of using an updated framework for risk assessment, such as that in the Presidential Commission's report of 1997, is not an SAB endorsement of that report's suggestion that uncertainty analysis be limited to exposure analysis portions of risk assessment and not to the health effects analysis components. (The Panel Chair agreed to do this)**

ii. **Replace sentence two in the paragraph under 4b, page 10, with the following "However, some systematic strategy for setting priorities based on individual criteria is lacking."**

iii. **Highlight the primary conclusions and recommendations to each charge question in the text.**

**c. Lessons Learned from the First Implementation of the Quality Review Committee Process**

During the discussion of these reports, Members identified a number of important philosophical and practical issues that need to be further addressed and incorporated into the Board's practice for the QRC review process.

i. Having QRC members observe the review throughout would ensure that they appreciate the extent and subtleties of the discussions that lead to the language in draft reports to the Agency.

ii. The extent to which it is reasonable for the Board to override conclusions of a review panel that are in the draft report text is an issue. It is important to recognize that the Board has the final responsibility, as the chartered entity, to ensure the quality of reports sent to the Administrator[2].

Thus, Board discretion to direct changes to draft documents is wide. However, there seems to be a need for the Board to identify, and articulate in guidance, principles that limit the changes they direct in draft reports. Such principles would help the Board, the QRC, and specific Committees/Panels to know when the Board's reporting and oversight responsibility should be considered to be complete. From the meeting discussions, some general principles can be suggested for Board consideration. For example, if the conclusion is technically inaccurate, it seems clear that an override is appropriate. However, if a conclusion derives from considering facts that do not lead to one, and only one conclusion, the Board should consider directing some further explanation on the subjective nature of the conclusion and the suggestion that another group of experts might conclude somewhat differently from the facts presented to the SAB rather than directing the conclusion be deleted.

Much of this can be interpreted as an "ownership" issue for the pieces of a report to the Administrator. It seems that the text of the report is the province

[2] The SAB Charter notes the following: "EPA, in consultation with the SAB, may form committees, panels, or workgroups for any purpose consistent with this charter. Such committees, panels or workgroups may not work independently of the chartered committee and must report their recommendations and advice to the SAB for full deliberation and discussion. Committees, panels, and workgroups have no authority to make decisions on behalf of the SAB and may not report directly to the Agency."

of the review panel and the letter is a joint Committee/Panel - Board product. However, some members believe that the Board itself should draft the letter to the Administrator.

iii. The impact on report quality from the changes desired by the QRC or the Board must be balanced against the need for timely transmittal of a report to the Agency. Combinations and modifications of the usual four recommendations that the QRC or the Board can make are appropriate. Such modifications can improve the timeliness of report transmittal and resolve the issue of final approval of the Board without the need to hold follow up meetings.

iv. Report formatting needs to be more consistent across reports of the SAB (e.g., focus of the letter to the Administrator, audience for the executive summary and the text, how conclusions and recommendations are highlighted in the text to convey clearly the message that is being sent by the panel). It may be useful to note in sections of the report that convey summary information that additional details are provided in the text of the report.

v. The letter to the Administrator is very important. It is the bridge between the technical issues discussed in the text of the report and how those issues might intersect with policy development. In essence, the letter should make it clear, what the Board would like the Administrator to understand about the report and what the Board recommends the Administrator do as a result.

vi. The "ownership" and the "audience" for the parts of SAB reports need to be defined and those decisions need to be reflected in the level of discussion detail and technicality that is associated with each section (letter, abstract, executive summary, report text).

vii. It is important for the Board to maintain an awareness of other SAB committee advice (or possibly even advice from the National Academy of Sciences) on similar issues so that appropriate consistency of advice can be ensured. For example, comments made on things such as a prioritization schemes for research in air toxics should not unnecessarily be at odds with advice given on similar approaches in another Agency program (e.g., contaminant candidate list research prioritization schemes under the Safe Drinking Water Act).

viii. The role of report "vettors" appointed by the QRC or the Board needs to be clarified. There needs to be a "stopping rule" to note when edits being made to a report are sufficient and need not to be pursued further.

ix. More lead time needs to be built into the QRC process so that issues like those noted for the air toxics report can be resolved prior to the report coming to the Board for final approval. Also, there needs to be a more effective way for the QRC's advice to be transmitted to the Board.

x. The framing and wording of an Agency charge can bias the outcome of a review. There needs to be a mechanism that ensures that the charge fits the SAB mission and that the charge is clear.

xi. The report review process, and the standardization of the report format that is contemplated, should remove the need for a second transmittal letter to the Administrator that explains the sense of the report.

**ACTION 2: Capture Lesson's Learned in the first use of the QRC in the minutes and then revise the QRC process guidance to reflect those lessons. Be sensitive to developments as we further implement the QRC process that will require further revisions to the process. The revision should clarify the items noted above, as well as describe the roles and responsibilities of the parties to an SAB review and/or report. This will also include guidance on formatting of reports to the Administrator and the audiences and message type for each part of the report (e.g., the cover letter is to the Administrator and bridges between the science and policy, the executive summary is for all wishing more detail on the conclusions and recommendations, and the full text is the technical response to the Agency and focuses on the involved science and scientists).**

## 7. Planning for Future Board Meetings

This session was held to allow Board members to discuss and further plan for the September 13-14, 2004 meeting in Region 9, and to further consider the upcoming Annual meeting of the SAB on December 1-2, 2004.

### a. September 13-14, 2004, Region 9:

This session was held to allow Board members to discuss with Region 9 representatives the possible topics that might be the focus of the first day of the September meeting in San Francisco. This meeting is a result of the Board's expressed desire to learn of and be more responsive to EPA Regional Office science needs. Attachment V is a list provided to illustrate a number of topics that are of importance to Region 9. Attachment W is the summary of the SAB meeting in Region 5 during July, 2003 to discuss regional issues.

The September meeting is to take advantage of any cross-fertilization opportunities that are presented by the co-location of both the Board meeting and the next full meeting of the SAB's Committee on Valuing the Protection of Ecological Systems and Services.

Specific issues discussed in regard to the September meeting include:

i) Field Trips: One or more field trips would be interesting and may allow the Board to take advantage of current activities on several issues that are of importance in

Region 9. The potential value of a field trip must be balanced against the need for time that is needed for discussing regional science issues with and the need for the Board to conduct its normal responsibilities.

ii) Topics of Interest:

aa) Consolidated Animal Feeding Operations (CAFOs) are of continuing interest. They were discussed somewhat generally during the Region 5 meeting in July 2003. For September, the Board might be able to visit a CAFO. If this occurs, the Board would benefit from information on how CAFO's present unique science issues to Regional Offices that are distinct from those science issues encountered by the Agency when the national rule was developed. Combining a CAFO trip with one that discusses CALFED would be of value as the CAFO-AG-CALFED issue are intertwined and nested in important ways. Also of interest would be how science interactions occur among Regional Offices, ORD, the national program office, and others.

bb) Another possibility is linked to the proximity to "Silicon Valley" could provide an opportunity to hear of waste issues that occur in the context of nano-manufacturing processes and what is being done to ensure that the waste issues that developed with semiconductor manufacture do not occur with emerging nano-manufacturing.

cc) The list of issues shows many that are linked to agriculture. That presents a possibility for discussing how the Regional Office responds to air emissions issues associated with the agricultural sector – a particularly big issue in the Central Valley of California. Also of importance would be to show how water issues relate to agricultural sector environmental science issues.

dd) Because Regions often see problems first, the presentations could also include emerging issues (e.g., brominated flame retardants, coral reef issues). Specific followup on a tribal issue would allow us to see at more depth how these issues come to the table and their uniqueness. How high-technology firms see the future could provide interesting input to the Board as it thinks of such issues (especially, how they balance their various types of research).

iii) Meeting Structure: A possible way to structure the meeting would be to present a short overarching view of Regional Office responsibilities followed by discussions of how Region 9 interacts with ORD, and other science organizations (of which Region 9 has many) on implementing those responsibilities. Discussing the gaps between the science needs of Region 9 and what is available would be important (both the short and the long run science needs). Finally, we could hear from Regional staff, and possibly others, about specific topics of interest (see the draft Region 9 list at Attachment V). This last could follow either a topic specific framework or a Regional Office program framework. Also, feedback on the Regional Science report would be

valuable for the Board to hear. Hearing of some success stories noting where science has been instrumental in resolving a Regional issue would be interesting.

The intention of the Board's trip to Region 9 is to allow it to discharge its overarching science review responsibility better. As such, Regional science issues and needs are a part of the three major foci for EPA science: i) research sponsored or conducted by EPA ORD, ii) science in the Program Offices, and iii) science in the Regional Offices – to include state, tribal and other issues as appropriate. All three of these foci integrate to form EPA's overall science program. The Board does not need to be convinced of the relevance, quality and responsiveness of Regional science activities. It does wish to hear about difficult Regional science issues, i.e., things that are hard to answer but important to achieving the Regional mission, how Regional staff respond to these difficulties to approach such issues, and how the SAB can assist. Thus, the Board desires the meeting to focus on "crucial science issues" in each Region 9 science program/project that is discussed. Presentations need to be brief, hit on important points, and raise questions that need answers. The Board anticipates there will be a number of action items coming from this interaction with Regional staff.

**ACTION 1: SAB Staff Office personnel will solicit from the Board members their top candidates from the list of important Region 9 issues and convey the result to Jan Baxter.**

**ACTION 2: SAB Staff Office personnel will draft an agenda for the full September meeting and interact with Region 9 staff to refine and focus of the agenda items. Staff will also work with relevant Board members to ensure their preparation for specific topics on the agenda.**

**b. December 1-2, 2004, Annual Meeting:**

Dr. Vu noted that the first Annual Meeting was held during December 2003. The theme was "Emerging Issues." The meeting also included a member recognition session. There were four emerging science issues discussed during the workshop (see Attachment X): air pollution and control/transboundary air pollutants, emerging contaminants, invasive species, and genomics.

The theme for 2004 will be built on the ideas captured in the SAB projects on research in a new industrial age and implications of nano-manufacturing. The event may actually be a scoping workshop to identify how these two projects will be combined and what the overarching and near term focus will be.

Some members wondered if this is in reality a "Workshop"? Having 100 attendees does not seem to present an opportunity for a workshop because there are too many participants to allow for an effective dialogue. We need to think of the meeting's purpose in order to determine how to characterize and organize the meeting. The presentations at the meeting need to be concrete as opposed to overly general. Also,

there is a need to define the terms that are being used to describe the issues (e.g., legacy issues, emerging issues).

**ACTION: A group of Members will work with Dr. Maciorowski, SAB Staff Office, to further refine the plans for this part of the annual meeting. These members include: Drs. David Rejeski, Cathy Kling, Valerie Thomas, Deborah Swackhamer, and Kristin Shrader-Frechette.**

Dr. Grasso adjourned the meeting at 12:05 pm.

Respectfully Submitted:

***/Signed/***

Thomas O. Miller
Designated Federal Officer

Certified as True:

***/Signed/***

Dr. William Glaze
Chair, EPA Science Advisory Board

***/Signed/***

Dr. Domenico Grasso
Vice Chair, EPA Science Advisory Board

## ATTACHMENTS

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| Attachment A: | Roster of the Board |
| Attachment B: | Meeting Agenda |
| Attachment C: | Federal Register Notice and Sign-in Sheets |
| Attachment D: | FIFRA SAP Liaison Update Notes |
| Attachment E: | Background information for the lessons learned from the Science Budgets Advisory |
| Attachment F: | Agendas for Board meetings of December 10, 2003 and February 23-24, 2004 |
| Attachment G: | Charge to SAB for the FY 2005 Science Budget Advisory |
| Attachment H: | 2003-2008 EPA Strategic Plan (final) |
| Attachment I: | Advisory Report on the Science and Research Budgets for the U.S. Environmental Protection Agency for Fiscal Year 2005 |
| Attachment J: | Statement of Dr. Genevieve Matanoski, Board Member, U.S. EPA SAB Before the Subcommittee on Environment, Technology and Standards, Committee on Science, U.S. House of Representatives, March 11, 2004 |
| Attachment K: | Background information for the OMB Peer Review Bulletin Information Session |
| Attachment L: | Office of Management and Budget Revised Information Quality Bulletin for Peer Review, April 15, 2004 |
| Attachment M: | Background information for the FY 2005 Nominated Advisory Projects |
| Attachment N: | Summary Tables for FY 2005 Nominated Projects |
| Attachment O: | Project Sheets for EPA Nominated Projects |
| Attachment P: | Project Sheets for SAB Nominated Projects |
| Attachment Q: | Information for the report review session of the Board meeting |
| Attachment R: | QRC excerpt from SAB Implementation Plan |
| Attachment S: | Minutes from the QRC meeting of May 18, 2004 |
| Attachment T: | Review of the environmental economics research strategy of the U.S. EPA |
| Attachment U: | EPA's Air Toxics Research Strategy and Air Toxics Multi Year Plan – A review by the ATRSMYPP of the EPA SAB |
| Attachment V: | List of Issues identified by Region 9 Staff as Discussion Points for Planning the September 13-14, 2004 SAB Meeting in San Francisco |
| Attachment W: | Minutes from the SAB EC Meeting in Region 5, July 16-17, 2004 |
| Attachment X: | Bulletin on SAB 2003 Workshop |